

dynamic-font-scaling

Dynamic Font Scaling Play+ provides a comprehensive system for dynamic font scaling that ensures optimal readability across all device sizes. This system combines responsive typography with fluid scaling techniques to create a seamless reading experience. Overview ■ The dynamic font scaling system includes: Responsive font sizes that adapt to screen size Fluid typography using CSS custom properties Consistent line heights for optimal readability Accessible font scaling that respects user preferences Performance-optimized calculations

CSS Custom Properties for Typography ■ Root Typography Variables ■ :root { /* Base font settings */
--font-family-sans-serif : -apple-system , BlinkMacSystemFont , "Segoe UI" , Roboto , "Helvetica Neue" , Arial , sans-serif ;
--font-family-monospace : SFMono-Regular , Menlo , Monaco , Consolas , "Liberation Mono" , "Courier New" , monospace ;
/* Base font size and line height */
--font-size-base : 1 rem ;
--line-height-base : 1.6 ;
/* Font weight scale */
--font-weight-light : 300 ;
--font-weight-normal : 400 ;
--font-weight-medium : 500 ;
--font-weight-semibold : 600 ;
--font-weight-bold : 700 ;
/* Responsive font size scale */
--font-size-xs : clamp (0.75 rem , 0.7 rem + 0.25 vw , 0.875 rem) ;
--font-size-sm : clamp (0.875 rem , 0.8 rem + 0.375 vw , 1 rem) ;
--font-size-base : clamp (1 rem , 0.9 rem + 0.5 vw , 1.125 rem) ;
--font-size-lg : clamp (1.125 rem , 1 rem + 0.625 vw , 1.25 rem) ;
--font-size-xl : clamp (1.25 rem , 1.1 rem + 0.75 vw , 1.5 rem) ;
--font-size-2xl : clamp (1.5 rem , 1.3 rem + 1 vw , 2 rem) ;
--font-size-3xl : clamp (2 rem , 1.8 rem + 1.25 vw , 2.5 rem) ;
--font-size-4xl : clamp (2.5 rem , 2.2 rem + 1.5 vw , 3 rem) ;
--font-size-5xl : clamp (3 rem , 2.6 rem + 2 vw , 4 rem) ; }
Responsive Typography Classes ■ Heading Classes ■ /* Display headings */
.display-1 { font-size : var (--font-size-5xl) ; font-weight : var (--font-weight-light) ; line-height : 1.2 ; }
.display-2 { font-size : var (--font-size-4xl) ; font-weight : var (--font-weight-light) ; line-height : 1.2 ; }
.display-3 { font-size : var (--font-size-3xl) ; font-weight : var (--font-weight-light) ; line-height : 1.2 ; }
.display-4 { font-size : var (--font-size-2xl) ; font-weight : var (--font-weight-light) ; line-height : 1.2 ; }
.display-5 { font-size : var (--font-size-xl) ; font-weight : var (--font-weight-light) ; line-height : 1.2 ; }
.display-6 { font-size : var (--font-size-lg) ; font-weight : var (--font-weight-light) ; line-height : 1.2 ; }
/* Regular headings */
.h1 , h1 { font-size : var (--font-size-3xl) ; font-weight : var (--font-weight-semibold) ; line-height : 1.2 ; margin-bottom : 0.5 rem ; }
.h2 , h2 { font-size : var (--font-size-2xl) ; font-weight : var (--font-weight-semibold) ; line-height : 1.3 ; margin-bottom : 0.5 rem ; }
.h3 , h3 { font-size : var (--font-size-xl) ; font-weight : var (--font-weight-medium) ; line-height : 1.4 ; margin-bottom : 0.5 rem ; }
.h4 , h4 { font-size : var (--font-size-lg) ; font-weight : var (--font-weight-medium) ; line-height : 1.4 ; margin-bottom : 0.5 rem ; }
.h5 , h5 { font-size : var (--font-size-base) ; font-weight : var (--font-weight-medium) ; line-height : 1.5 ; margin-bottom : 0.5 rem ; }
.h6 , h6 { font-size : var (--font-size-sm) ; font-weight : var (--font-weight-medium) ; line-height : 1.5 ; margin-bottom : 0.5 rem ; }
Body Text Classes ■ /* Body text */
.lead { font-size : var (--font-size-lg) ; font-weight : var (--font-weight-normal) ; line-height : 1.5 ; }
p { font-size : var (--font-size-base) ; font-weight : var (--font-weight-normal) ; line-height : var (--line-height-base) ; margin-top : 1 rem ; margin-bottom : 1 rem ; }
/* Small text */
.small , small { font-size : var (--font-size-sm) ; line-height : 1.5 ; }
/* Extra small text */
.text-xs { font-size : var (--font-size-xs) ; line-height : 1.5 ; }
Fluid Typography Implementation ■ Using CSS clamp() ■ /* Fluid heading sizes */
.fluid-heading { font-size : clamp (1.5 rem , 4 vw + 1 rem , 3 rem) ; line-height : 1.2 ; }
.fluid-subheading { font-size : clamp (1.125 rem , 2.5 vw + 0.75 rem , 1.75 rem) ; line-height : 1.3 ; }
.fluid-body { font-size : clamp (1 rem , 1 vw + 0.875 rem , 1.125 rem) ; line-height : 1.6 ; }
Responsive Font Size Mixins ■
// SCSS mixin for fluid typography
@mixin fluid-type(\$min-vw, \$max-vw, \$min-size, \$max-size) { \$u1: unit(\$min-vw); \$u2: unit(\$max-vw); \$u3: unit(\$min-size); \$u4: unit(\$max-size);
@if \$u1 == \$u2 and \$u1 == \$u3 and \$u1 == \$u4 { & { font-size: \$min-size; @media screen and (min-width: \$min-vw) { font-size: calc(#{ \$min-size } + #{strip-unit(\$max-size - \$min-size)} * ((100vw - #{ \$min-vw }) / #{strip-unit(\$max-vw - \$min-vw)})); } }
@media screen and (min-width: \$max-vw) { font-size: \$max-size; } } }
// Usage
.fluid-text { @include fluid-type(320px, 1200px, 16px, 18px); }
Responsive Typography Utilities ■ Font Size Utilities ■ /* Responsive font size utilities */
.fs-1 { font-size : var (--font-size-5xl) !important ; }
.fs-2 { font-size : var (--font-size-4xl)

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!important; } .fs-3 { font-size: var(--font-size-3xl) !important; } .fs-4 { font-size: var(--font-size-2xl) !important; } .fs-5 { font-size: var(--font-size-xl) !important; } .fs-6 { font-size: var(--font-size-lg) !important; }
/* Responsive font sizes */ @media (min-width: 576 px) { .fs-sm-1 { font-size: var(--font-size-5xl) !important; } .fs-sm-2 { font-size: var(--font-size-4xl) !important; } /* ... more responsive sizes */ } @media (min-width: 768 px) { .fs-md-1 { font-size: var(--font-size-5xl) !important; } .fs-md-2 { font-size: var(--font-size-4xl) !important; } /* ... more responsive sizes */ }
Line Height Utilities ■ /* Line height utilities */ .lh-1 { line-height: 1 !important; } .lh-sm { line-height: 1.25 !important; } .lh-base { line-height: 1.5 !important; } .lh-lg { line-height: 2 !important; }
Accessibility Considerations ■ Respecting User Preferences ■ /* Respect user's font size preferences */ @media (prefers-reduced-motion: reduce) { * { animation-duration: 0.01 ms !important; animation-iteration-count: 1 !important; transition-duration: 0.01 ms !important; } }
/* High contrast mode support */ @media (prefers-contrast: high) { :root { --font-weight-normal: 500; --font-weight-medium: 600; --font-weight-semibold: 700; } }
Minimum Readable Sizes ■ /* Ensure minimum readable font sizes */ body { font-size: max(16 px, var(--font-size-base)); } .small, small { font-size: max(14 px, var(--font-size-sm)); } .text-xs { font-size: max(12 px, var(--font-size-xs)); }
Implementation Examples ■ Hero Section with Fluid Typography ■ < section class = "hero" > < div class = "container" > < div class = "row" > < div class = "col-12" > < h1 class = "fluid-heading mb-4" > Welcome to Our Platform </ h1 > < p class = "fluid-body lead mb-4" > Discover amazing features and possibilities with our innovative solution. </ p > < button class = "btn btn-primary btn-lg" > Get Started </ button > </ div > </ div > </ div > </ section >
.hero { padding: 4 rem 0; text-align: center; } .fluid-heading { font-size: clamp(2 rem, 5 vw + 1 rem, 4 rem); font-weight: var(--font-weight-bold); line-height: 1.1; margin-bottom: 1.5 rem; } .fluid-body { font-size: clamp(1.125 rem, 1.5 vw + 0.875 rem, 1.5 rem); line-height: 1.5; max-width: 600 px; margin: 0 auto; }
Article Typography ■ < article class = "article" > < header class = "article-header" > < h1 class = "article-title" > Article Title </ h1 > < p class = "article-meta" > Published on < time > 2024-01-15 </ time > </ p > </ header > < div class = "article-content" > < p class = "article-lead" > This is the lead paragraph that introduces the article content. </ p > < h2 > Section Heading </ h2 > < p > Regular paragraph content with optimal line height and spacing. </ p > < h3 > Subsection Heading </ h3 > < p > More content with consistent typography scaling. </ p > </ div > </ article >
.article { max-width: 65 ch; margin: 0 auto; padding: 2 rem 0; } .article-title { font-size: clamp(2 rem, 4 vw + 1 rem, 3 rem); font-weight: var(--font-weight-bold); line-height: 1.2; margin-bottom: 1 rem; } .article-meta { font-size: var(--font-size-sm); color: var(--text-muted); margin-bottom: 2 rem; } .article-lead { font-size: var(--font-size-lg); font-weight: var(--font-weight-medium); line-height: 1.6; margin-bottom: 2 rem; } .article-content h2 { font-size: clamp(1.5 rem, 2.5 vw + 1 rem, 2 rem); margin-top: 3 rem; margin-bottom: 1 rem; } .article-content h3 { font-size: clamp(1.25 rem, 2 vw + 0.875 rem, 1.5 rem); margin-top: 2 rem; margin-bottom: 0.75 rem; } .article-content p { font-size: var(--font-size-base); line-height: var(--line-height-base); margin-bottom: 1.5 rem; }
Performance Optimization ■ CSS Custom Properties for Performance ■ /* Use CSS custom properties for better performance */ :root { /* Pre-calculated fluid values */ --fluid-ratio: calc((100 vw - 320 px) / (1200 - 320)); --fluid-min: 1 rem; --fluid-max: 1.125 rem; --fluid-size: calc(var(--fluid-min) + (var(--fluid-max) - var(--fluid-min)) * var(--fluid-ratio)); } .optimized-fluid-text { font-size: clamp(var(--fluid-min), var(--fluid-size), var(--fluid-max)); }
Font Loading Optimization ■ <!-- Preload critical fonts --> < link rel = "preload" href = "/fonts/inter-var.woff2" as = "font" type = "font/woff2" crossorigin /> <!-- Use font-display for better performance --> < style > @font-face { font-family: "Inter"; src: url("/fonts/inter-var.woff2") format("woff2"); font-display: swap; } </ style >
Best Practices ■ 1. Typography Scale ■ Use a consistent scale (1.25 or 1.5 ratio) Ensure sufficient contrast between heading levels Maintain readable line lengths (45-75 characters)
2. Responsive Design ■ Start with mobile-first approach Test typography across all breakpoints Ensure minimum readable sizes
3. Performance ■ Use system fonts as fallbacks Optimize font loading with font-display: swap Minimize font file sizes
4. Accessibility ■ Respect user's font size preferences Maintain sufficient color contrast Provide adequate line spacing
5. Maintenance ■ Use CSS custom properties for consistency Document typography decisions Create reusable typography classes
This dynamic font scaling system ensures optimal readability and visual hierarchy

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across all devices while maintaining performance and accessibility standards.